

Recording: <https://www.youtube.com/watch?v=YQLOcjbvbo9s>



# RED HAT® DEVELOPER PROGRAM

## Istio: Canaries and Kubernetes



@burrsutter



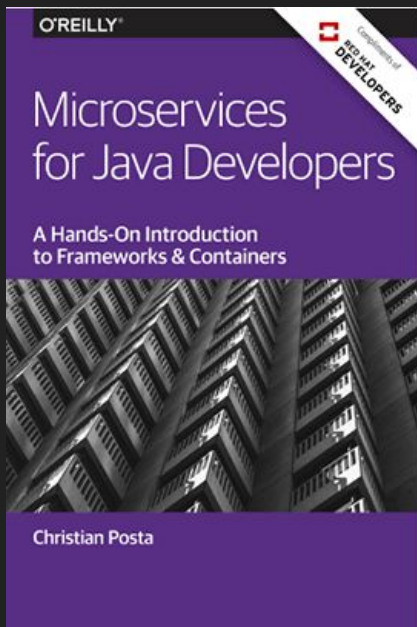
burr@redhat.com

Link



[bit.ly/istio-canaries](https://bit.ly/istio-canaries)  
[bit.ly/istio-tutorial](https://bit.ly/istio-tutorial)

[bit.ly/javamicroservicesbook](http://bit.ly/javamicroservicesbook)



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## Microservices Introductory Materials

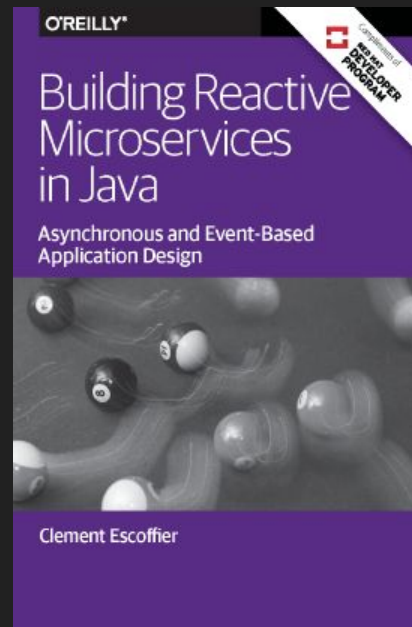
Demo: [bit.ly/msa-instructions](http://bit.ly/msa-instructions)

Slides: [bit.ly/microservicesdeepdive](http://bit.ly/microservicesdeepdive)

Video Training: [bit.ly/microservicesvideo](http://bit.ly/microservicesvideo)

[Kubernetes for Java Developers](#)

[bit.ly/reactivemicroservicesbook](http://bit.ly/reactivemicroservicesbook)



## Microservices Advanced Materials

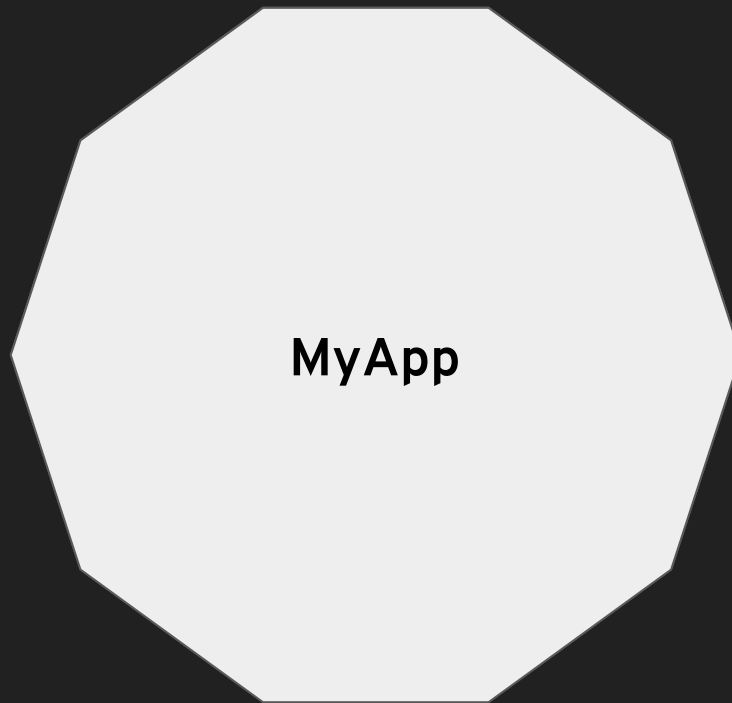
[bit.ly/istio-tutorial](http://bit.ly/istio-tutorial)

[bit.ly/mono2microdb](http://bit.ly/mono2microdb)

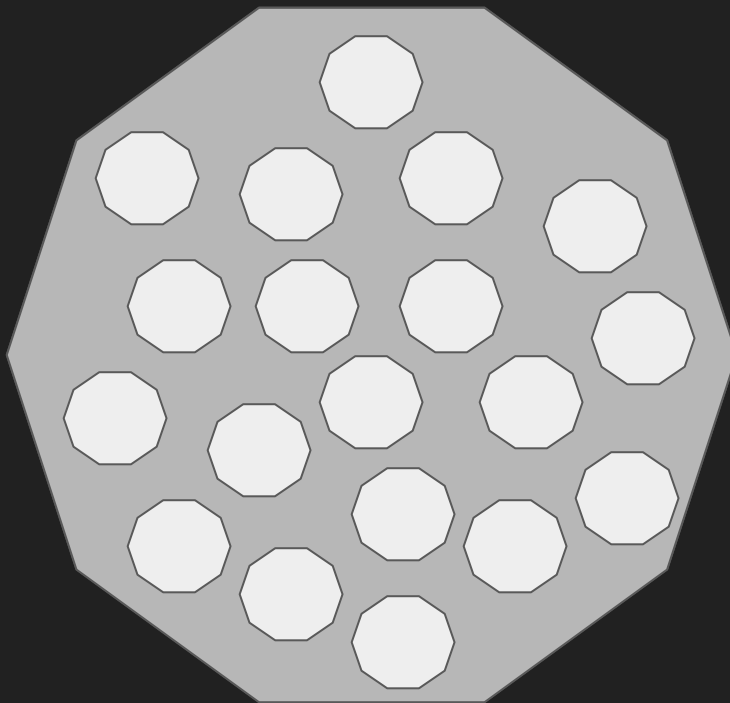
<http://bit.ly/istio-canaries>

[Istio.io](http://Istio.io)

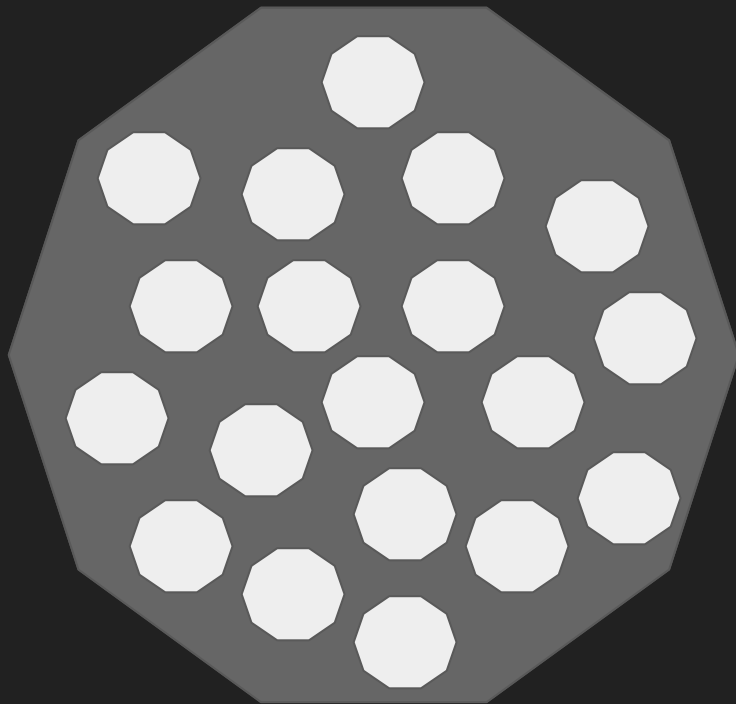
# Monolith



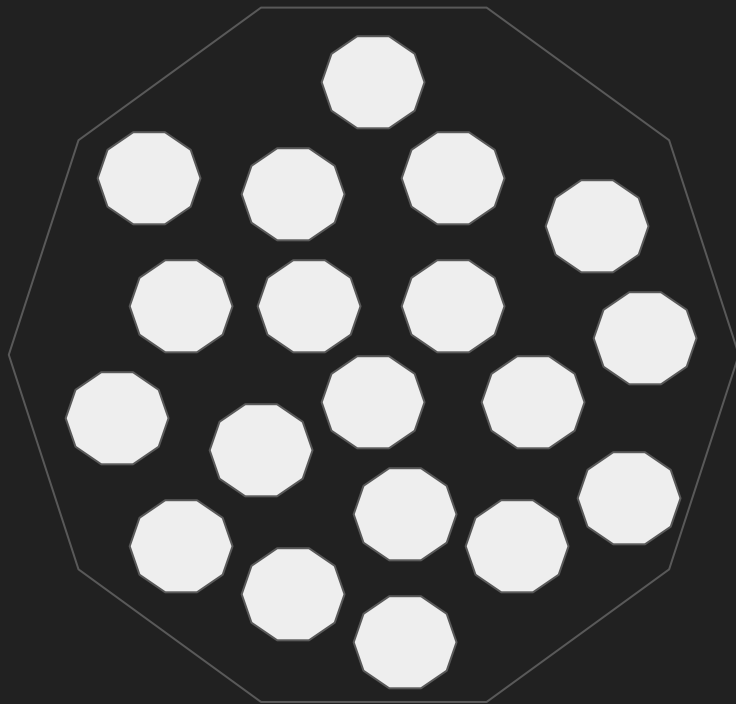
# Microservices



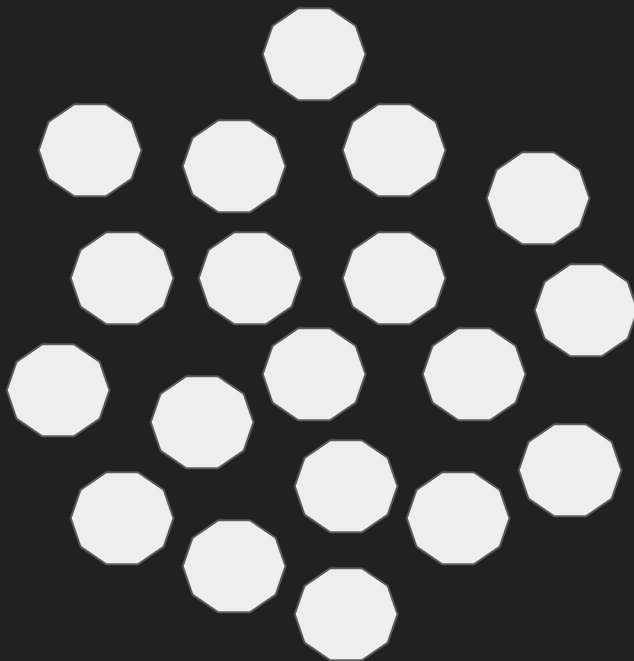
# Microservices



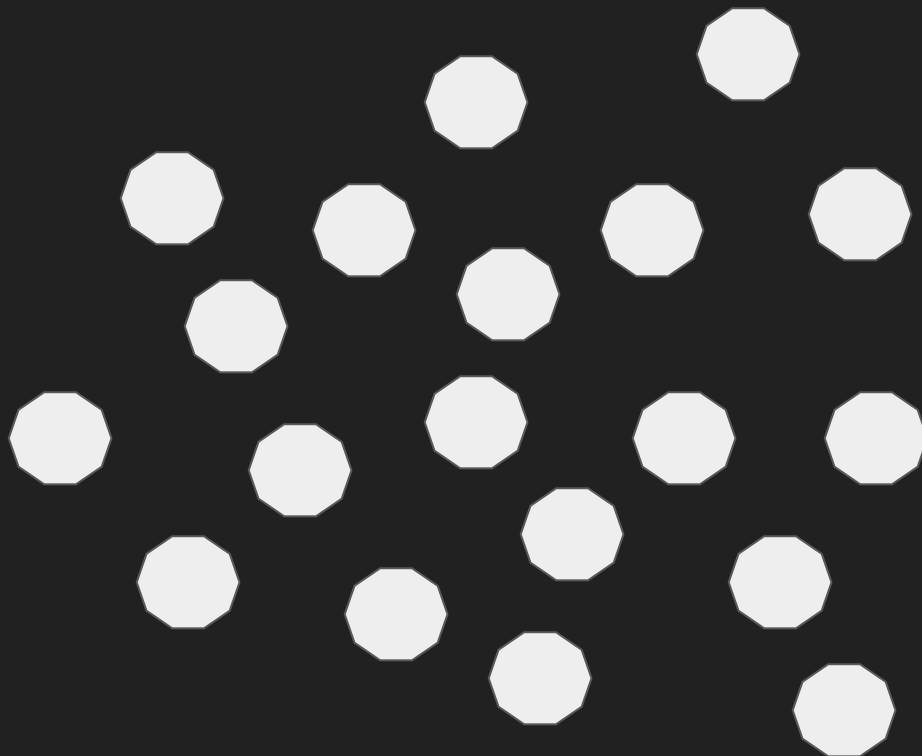
# Microservices



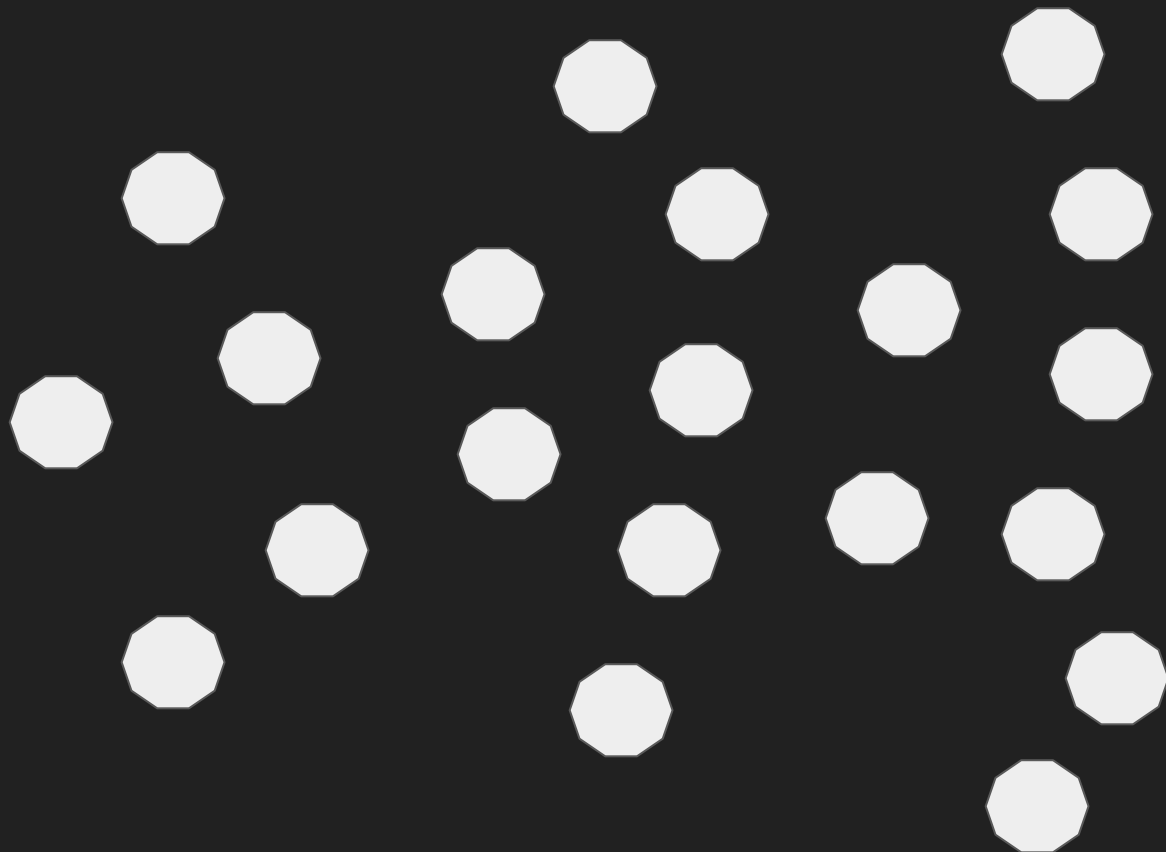
# Microservices



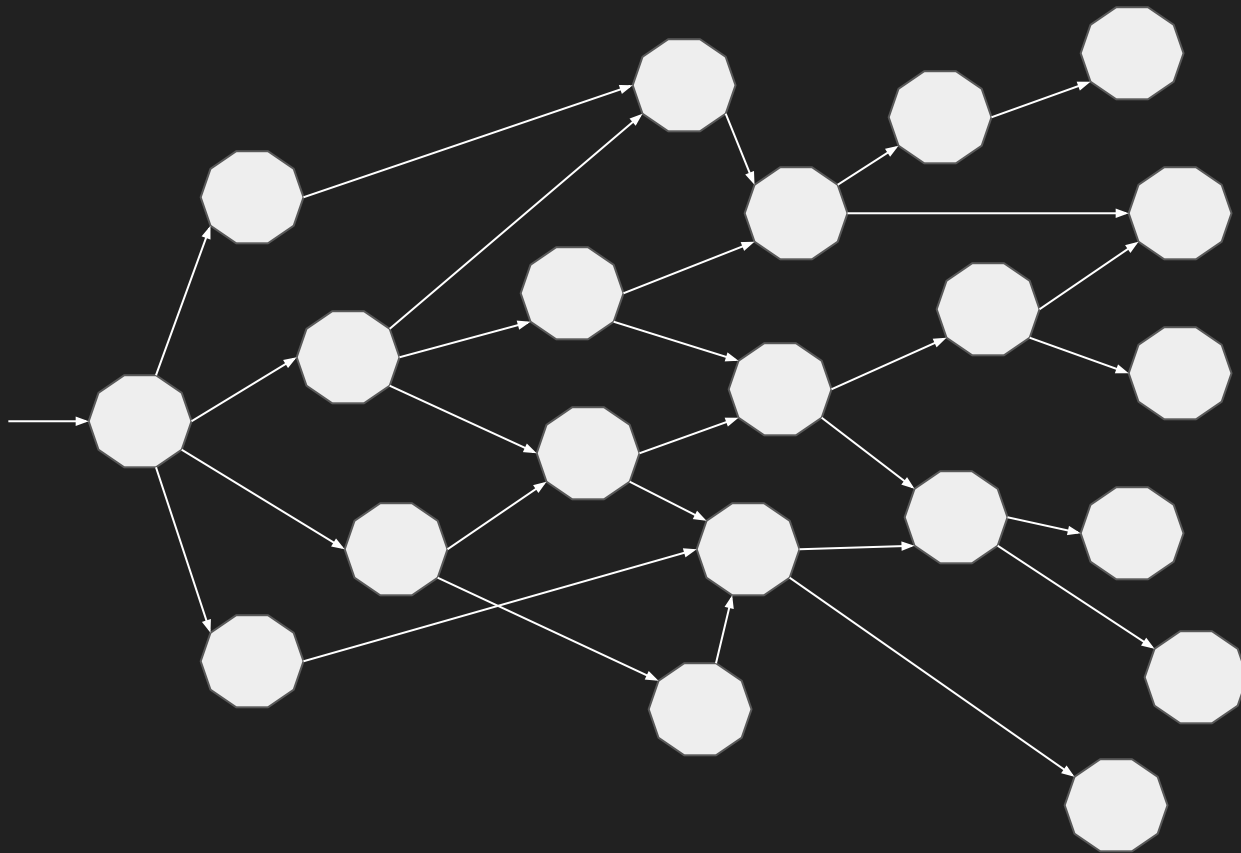
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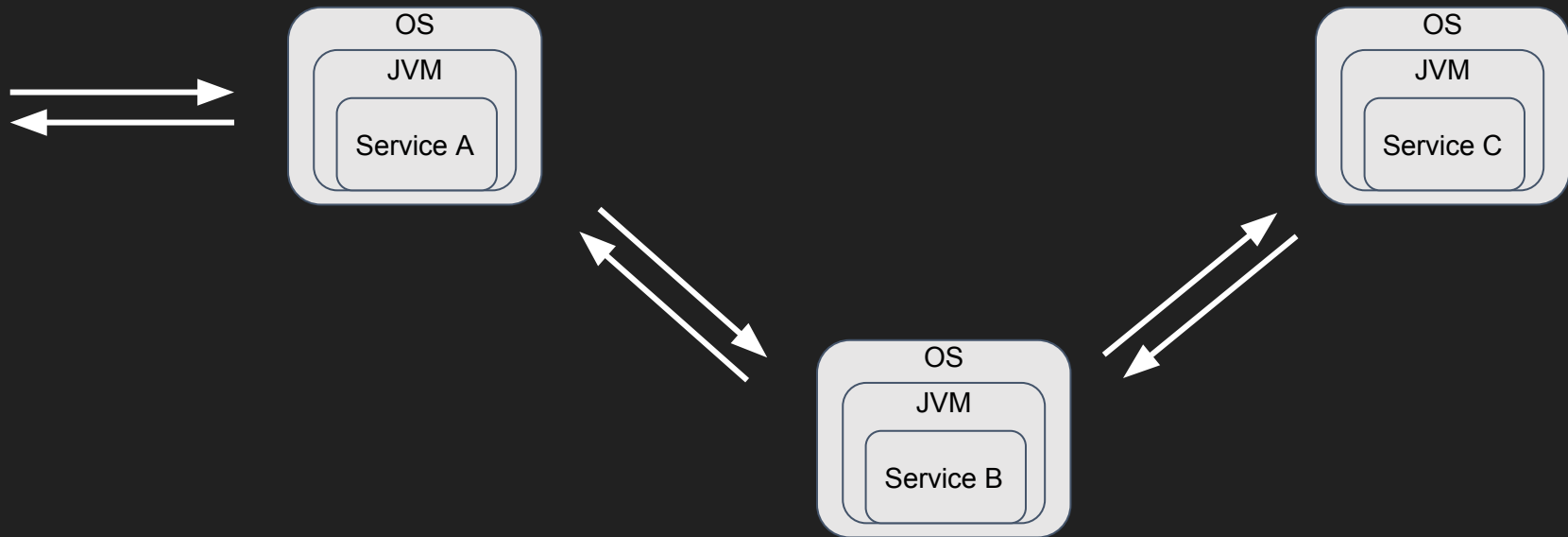
# Microservices



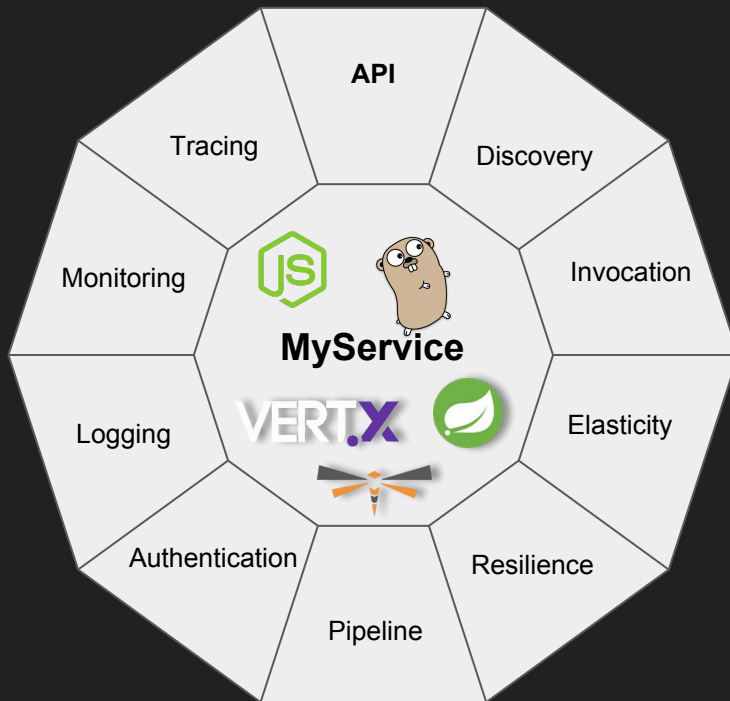
# Network of Services



# Microservices == Distributed Computing



# Microservices'ilities



# Short History of Microservices



NETFLIX

OSS

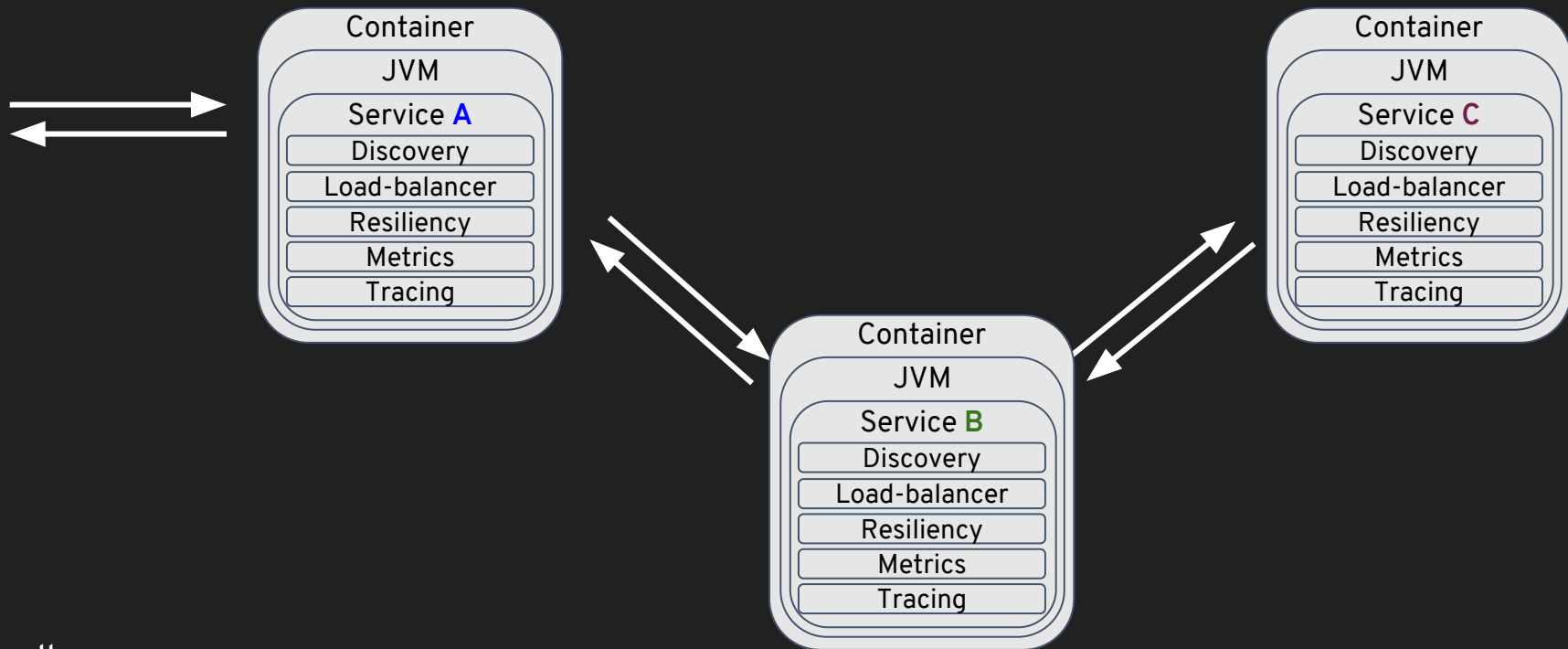
# What's Wrong with Netflix OSS?

Java Only

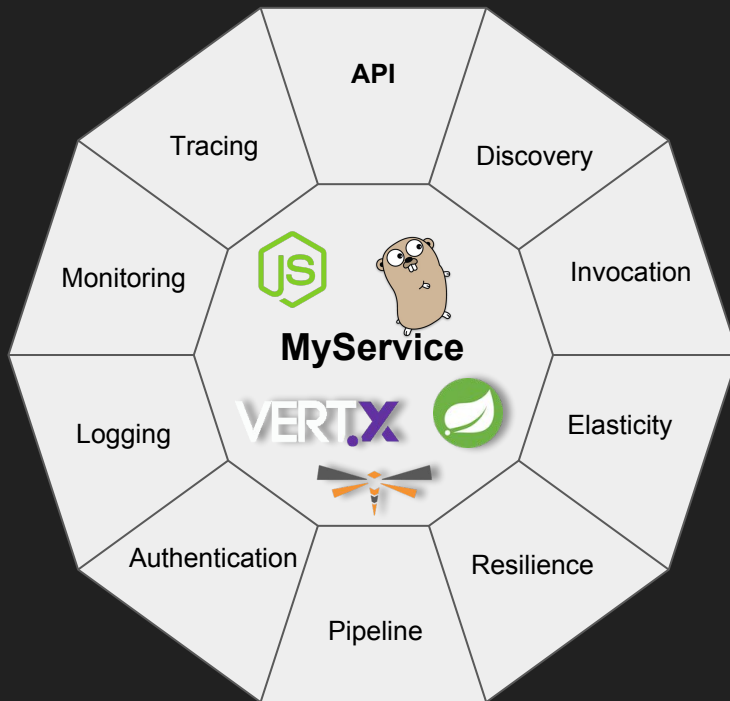
Adds a lot of libraries to YOUR code



# Microservices embedding Capabilities



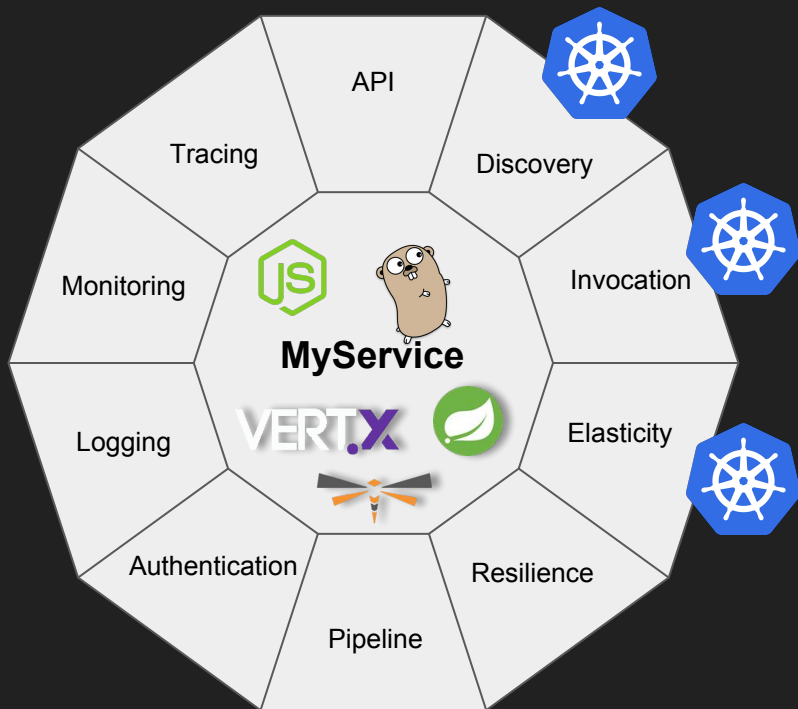
# Microservices'ilities



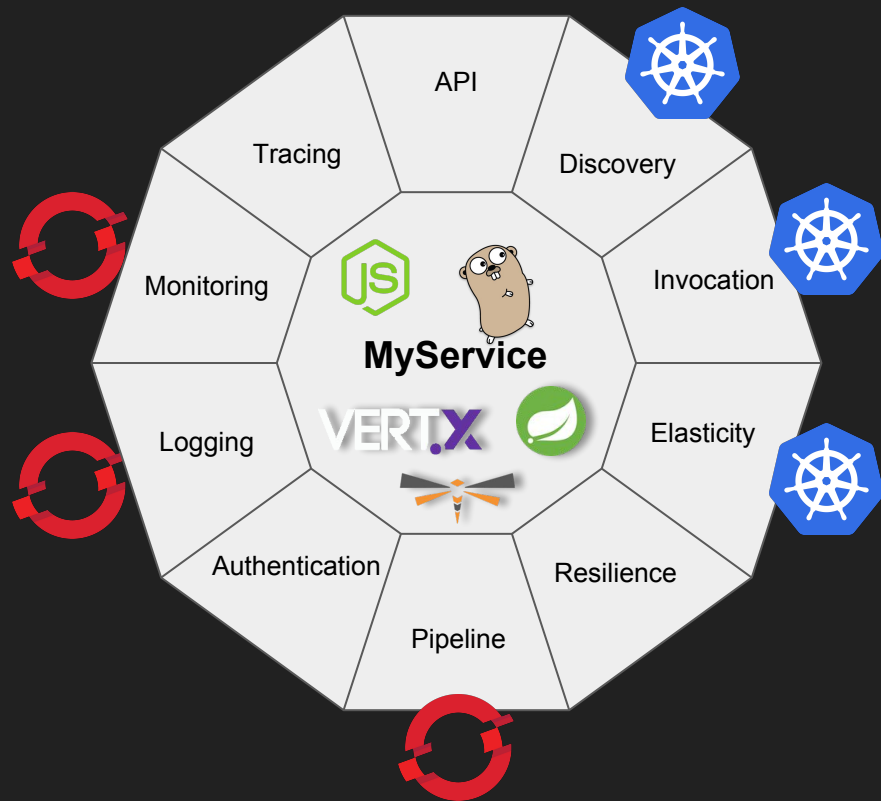


**OPENSIFT**

# Microservices'ilities + Kubernetes



# Microservices'ilities + OpenShift





# Istio - Sail

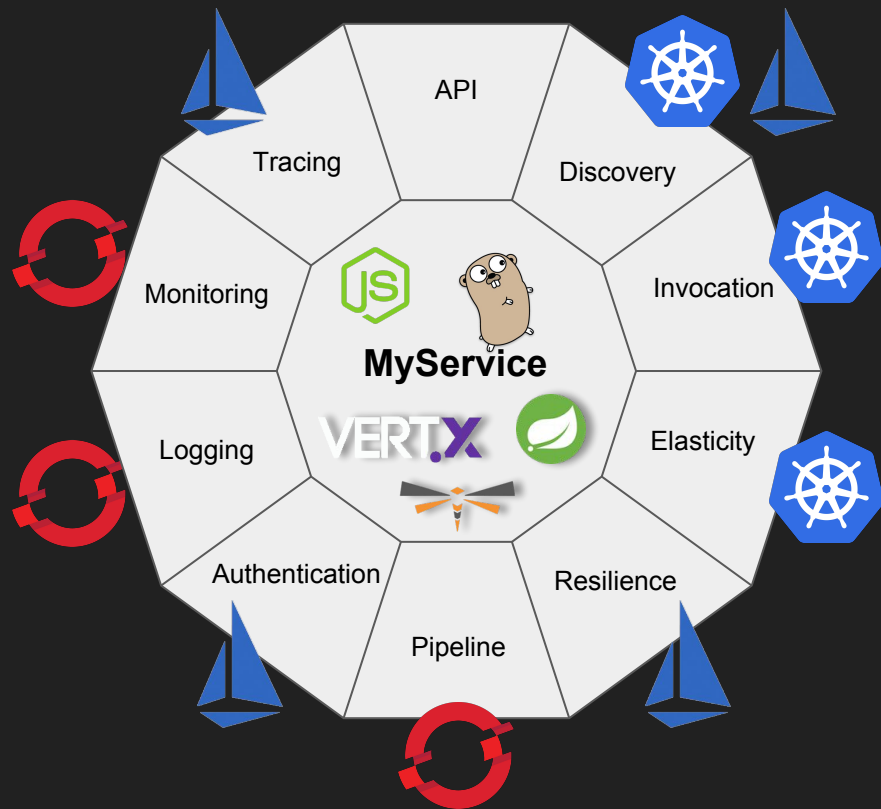
(Kubernetes - Helmsman or ship's pilot)

# Service Mesh Defined

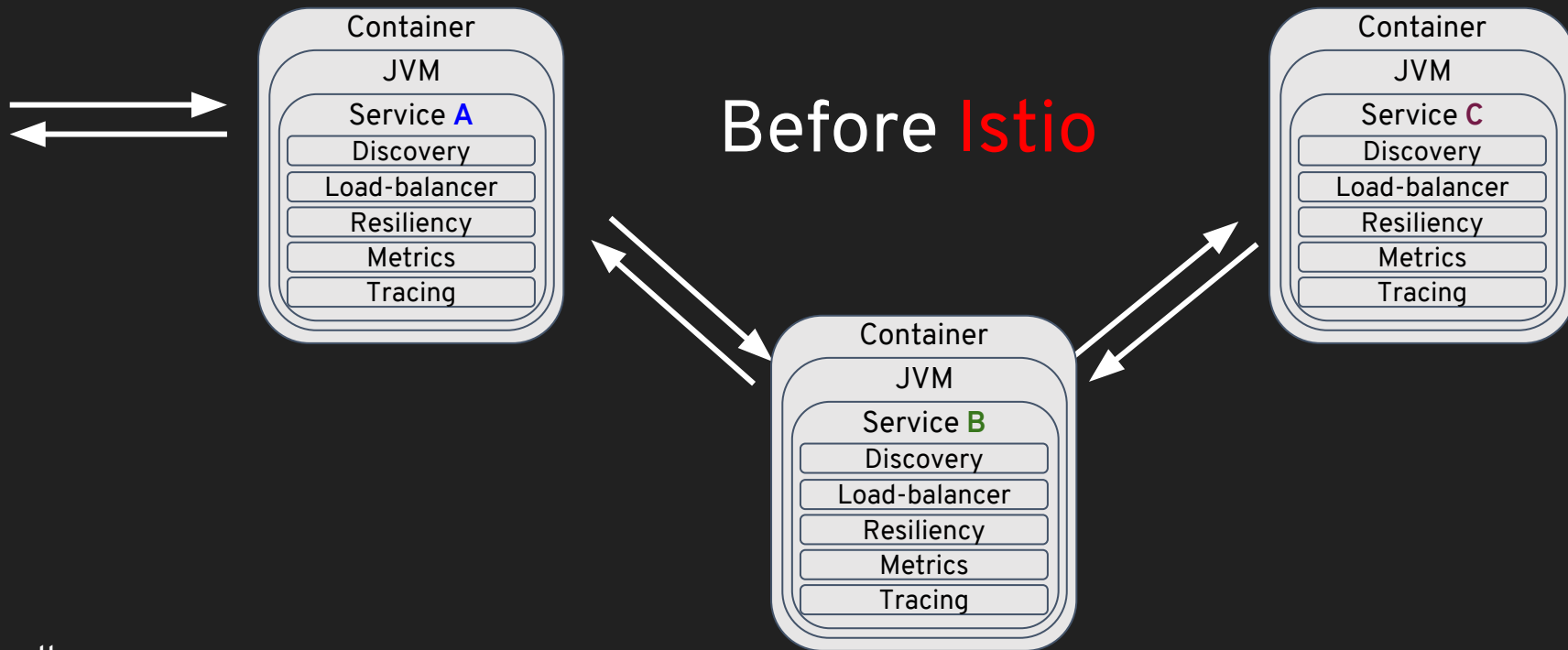
A service mesh is a dedicated infrastructure layer for handling service-to-service communication. It's responsible for the reliable delivery of requests through the complex topology of services that comprise a modern, cloud native application. In practice, the service mesh is typically implemented as an array of lightweight network proxies that are deployed alongside application code, without the application needing to be aware

<https://buoyant.io/2017/04/25/whats-a-service-mesh-and-why-do-i-need-one/>

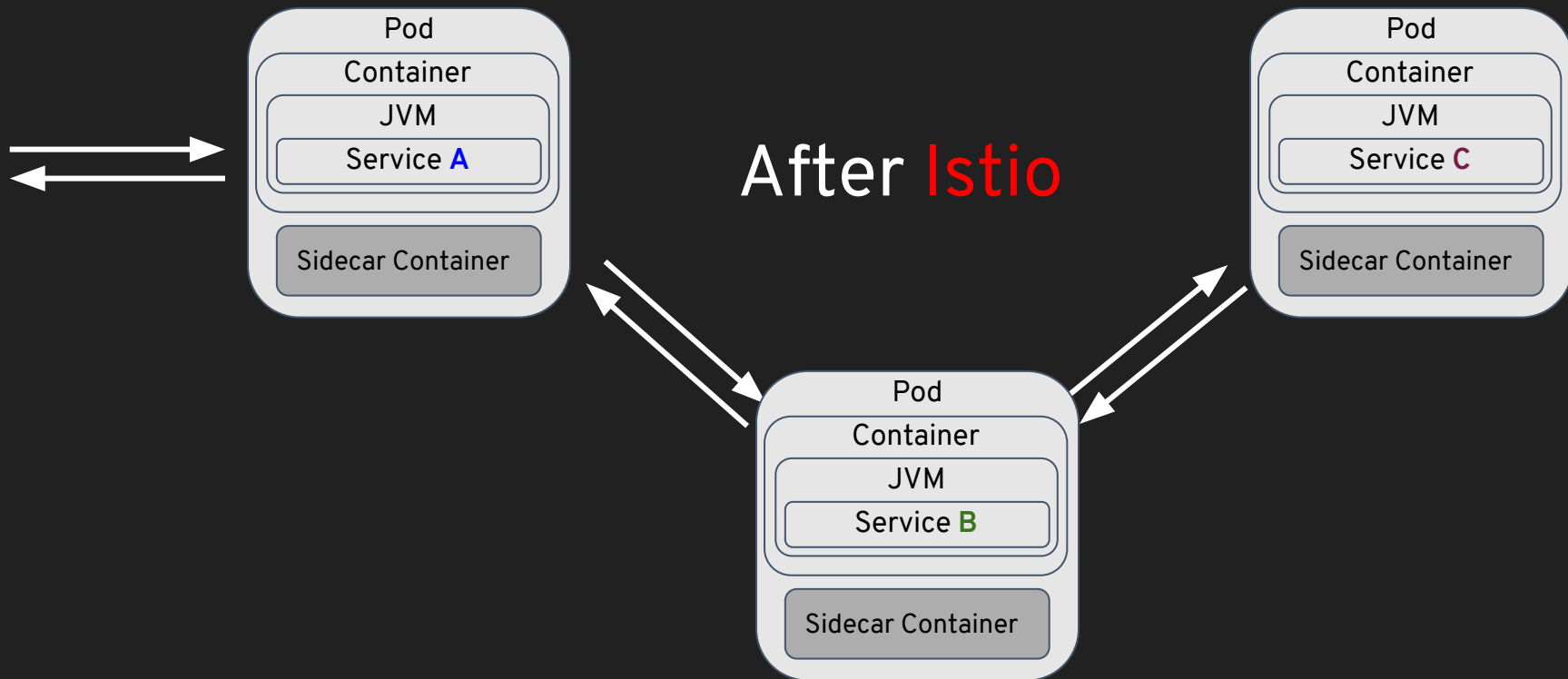
# Microservices'ilities + Istio



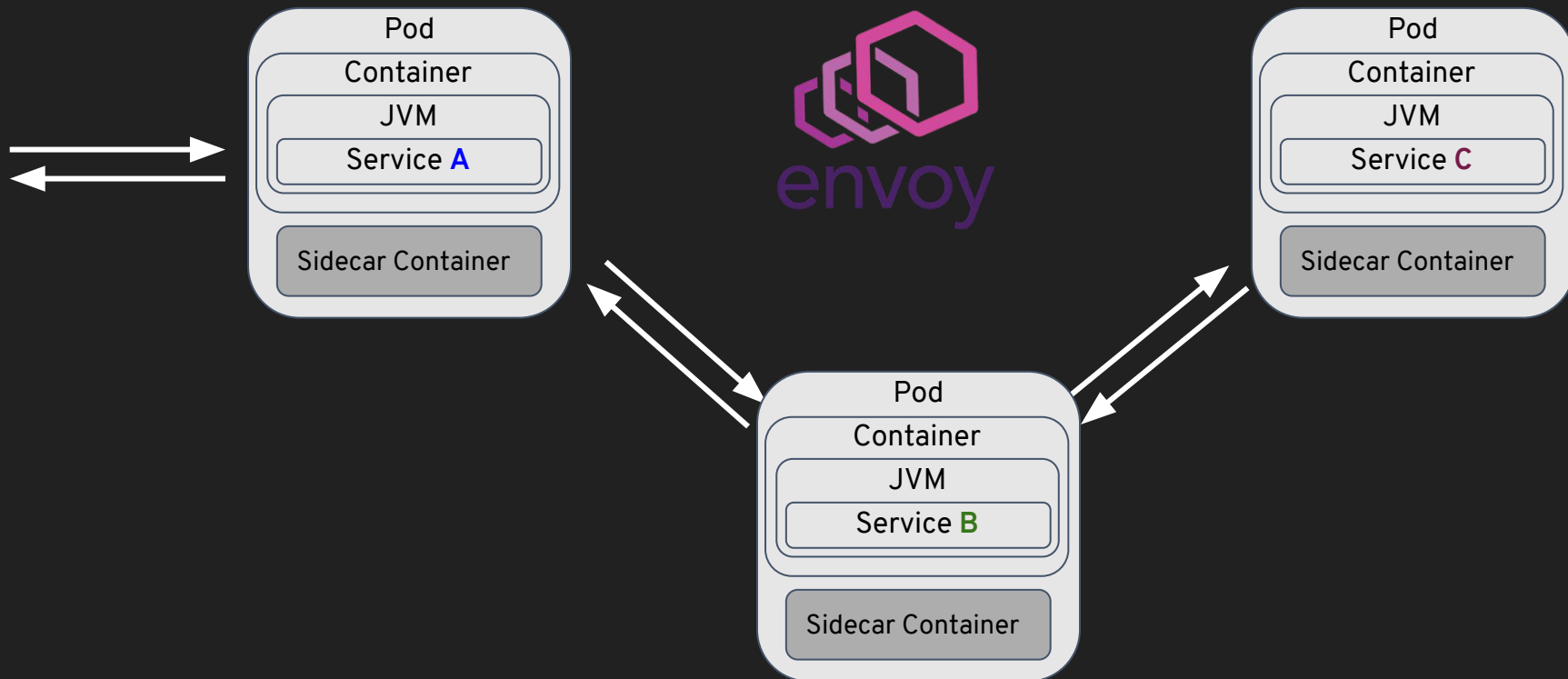
# Microservices embedding Capabilities



# Microservices externalizing Capabilities



# Kubernetes, Istio, Envoy



# Next Generation Microservices - Service Mesh

## Code Independent (Polyglot)

- Intelligent Routing and Load-Balancing
  - A/B Tests
  - Smarter Canary Releases
- Chaos: Fault Injection
- Resilience: Circuit Breakers
- Observability: Metrics and Tracing
- Fleet wide policy enforcement



EXPLORER



## OPEN EDITORS

! bookinfo.yaml

! bookinfo\_istio.yaml

! bookinfo\_istio.yaml ↔ bookinfo...

## BOOKINFO

! bookinfo\_istio.yaml

! bookinfo-ingress.yaml

! bookinfo-v1.yaml

! bookinfo.yaml

cleanup.sh

! destination-ratings-test-delay.yaml

! loadbalancing-policy-reviews.yaml

! mixer-rule-additional-telemetry.ya...

! mixer-rule-empty-rule.yaml

! mixer-rule-ratings-denial.yaml

! mixer-rule-ratings-ratelimit.yaml

① README.md

! route-rule-all-v1.yaml

! route-rule-delay.yaml

! route-rule-reviews-50-v3.yaml

! route-rule-reviews-test-v2.yaml

! route-rule-reviews-v2-v3.yaml

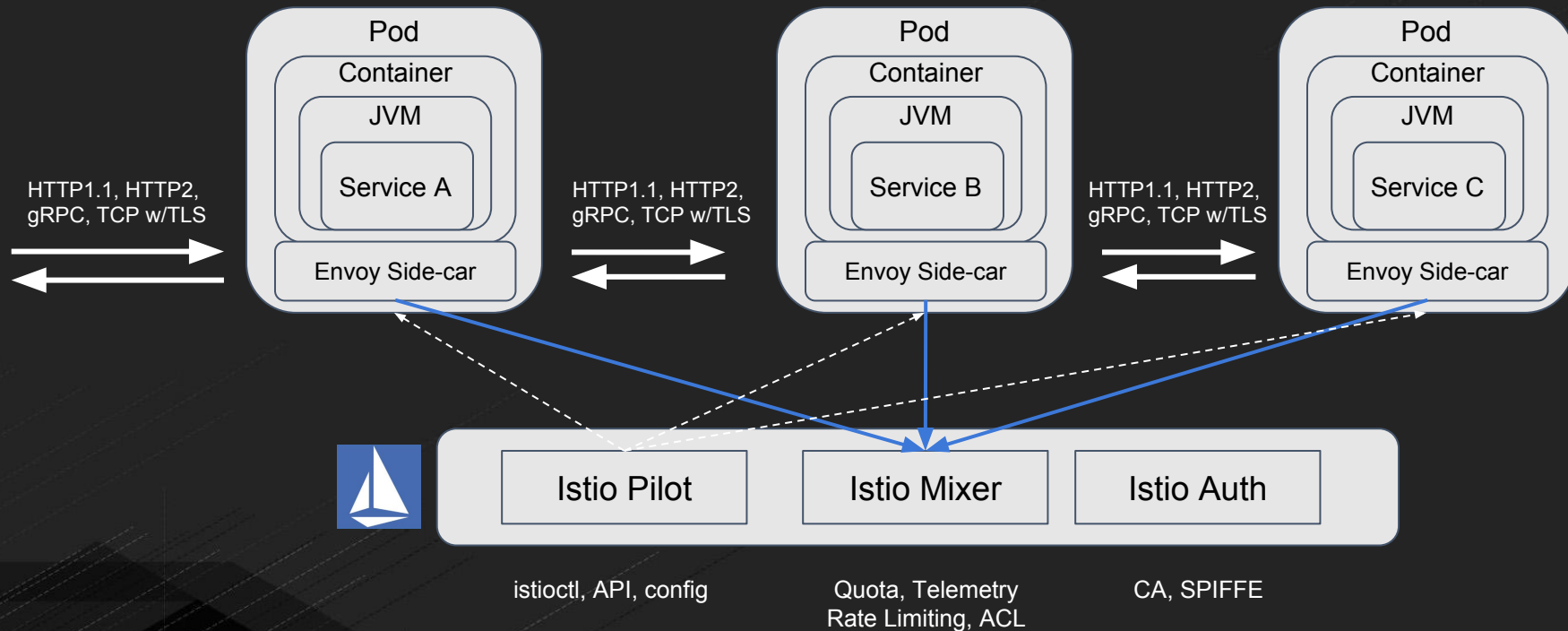
! route-rule-reviews-v3.yaml



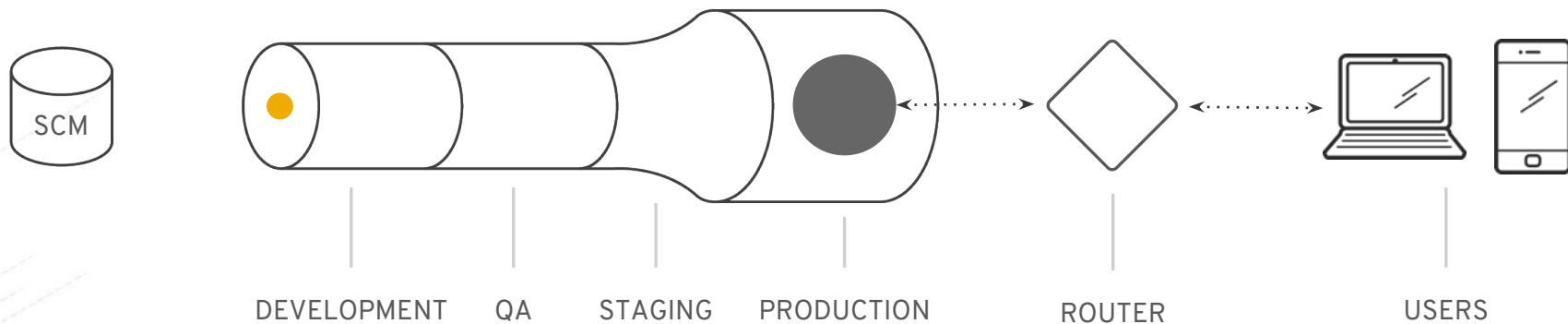
```
41 - annotations:
42 -   alpha.istio.io/sidecar: injected
43 -   alpha.istio.io/version: jenkins@ubuntu-16-04-build
44 -   pod.beta.kubernetes.io/init-containers: '[{"args":
45 -     -w kernel.core_pattern=/tmp/core.%.%.%.%t \u0026
46 -   creationTimestamp: null
47 -   labels:
48 -     app: details
49 -     version: v1
50 -   spec:
51 -     containers:
52 -       - image: istio/examples-bookinfo-details-v1
53 -         imagePullPolicy: IfNotPresent
54 -         name: details
55 -         ports:
56 -           - containerPort: 9080
57 -         resources: {}
58 -         args:
59 -           - proxy
60 -           - sidecar
61 -           - -v
62 -           - "2"
63 -         env:
64 -           - name: POD_NAME
65 -             valueFrom:
66 -               fieldRef:
67 -                 fieldPath: metadata.name
68 -           - name: POD_NAMESPACE
69 -             valueFrom:
70 -               fieldRef:
71 -                 fieldPath: metadata.namespace
72 -           - name: POD_IP
73 -             valueFrom:
74 -               fieldRef:
75 -                 fieldPath: status.podIP
76 -         image: docker.io/istio/proxy_debug:0.1
77 -         imagePullPolicy: Always
```

```
39 labels:
40   app: details
41   version: v1
42 spec:
43   containers:
44 +   - name: details
45 +     image: istio/examples-bookinfo-details-v1
46     imagePullPolicy: IfNotPresent
47   ports:
48     - containerPort: 9080
```

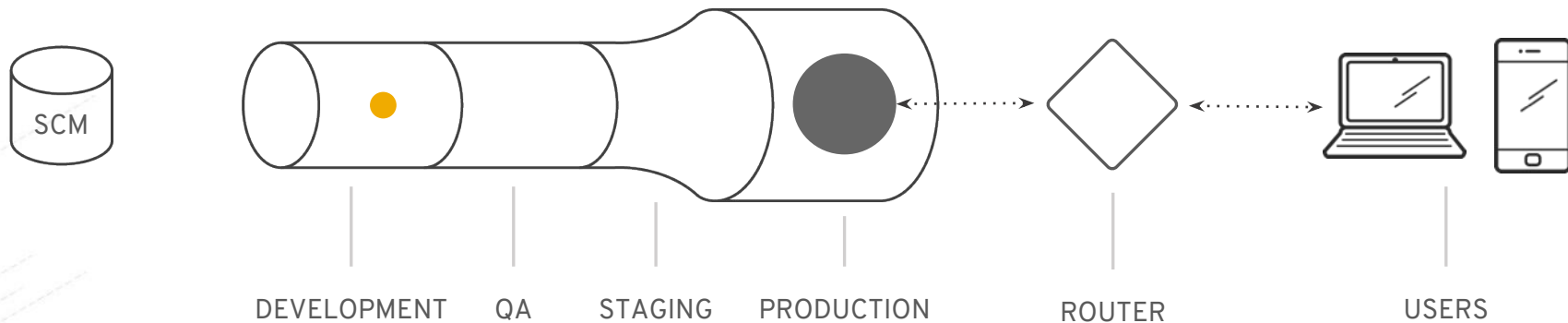
# Istio Control Plane



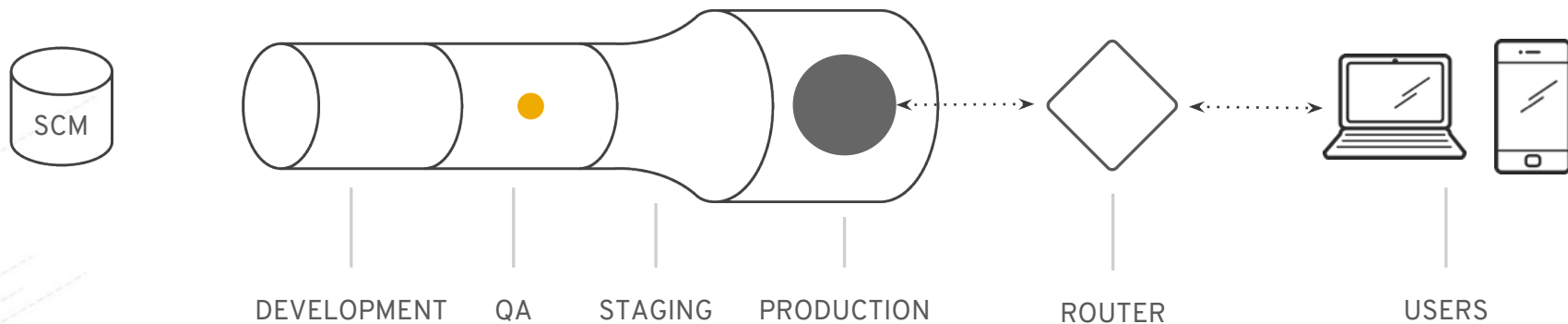
# Canary Deployment



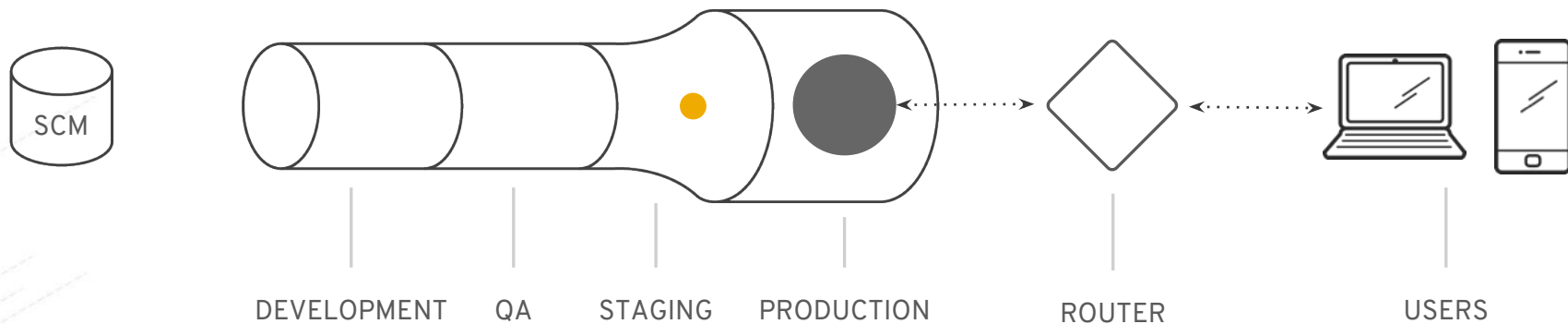
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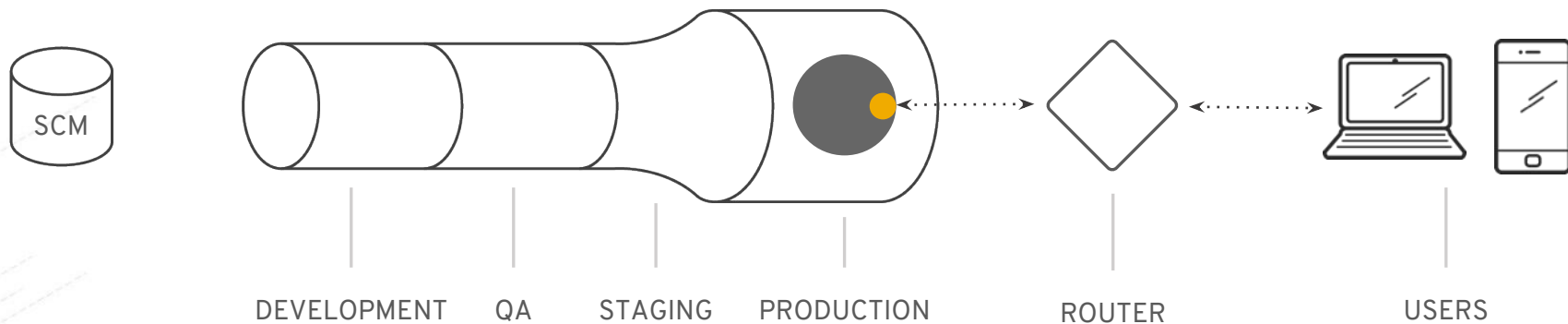
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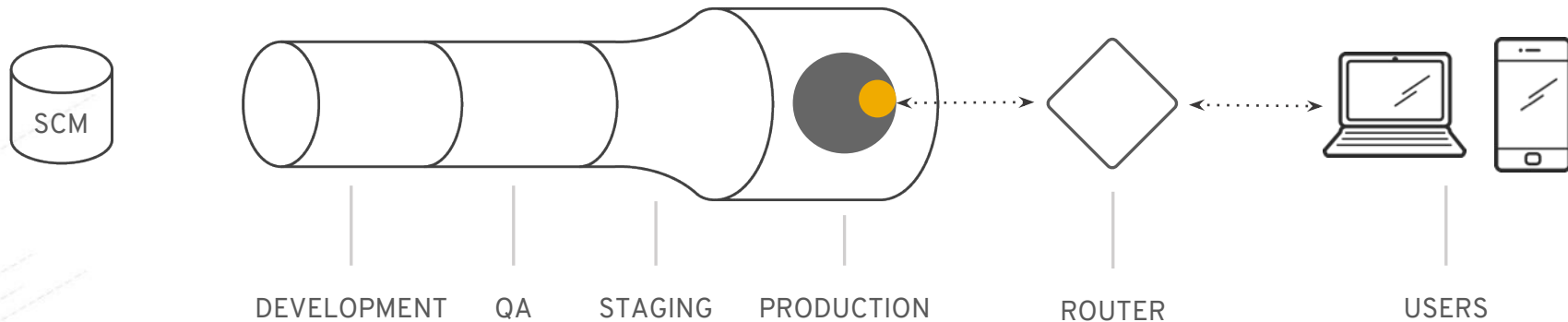
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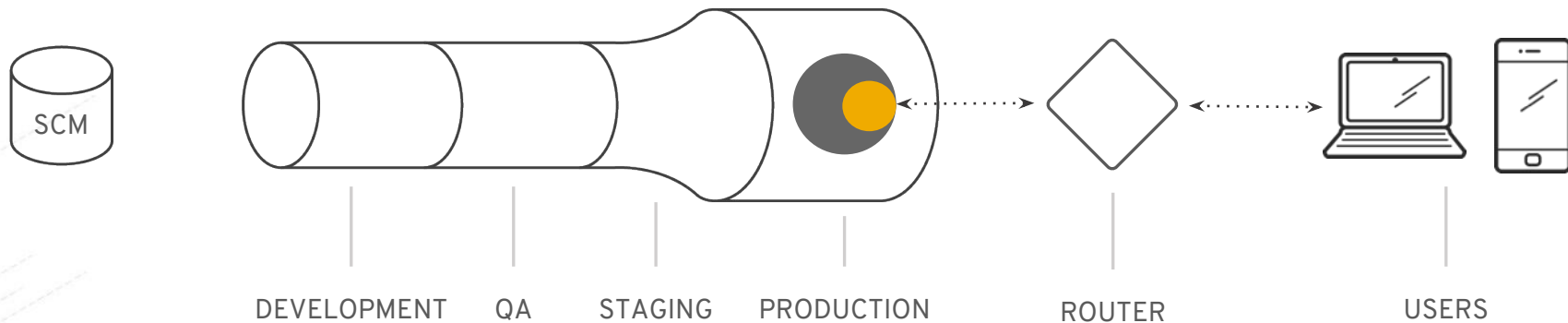
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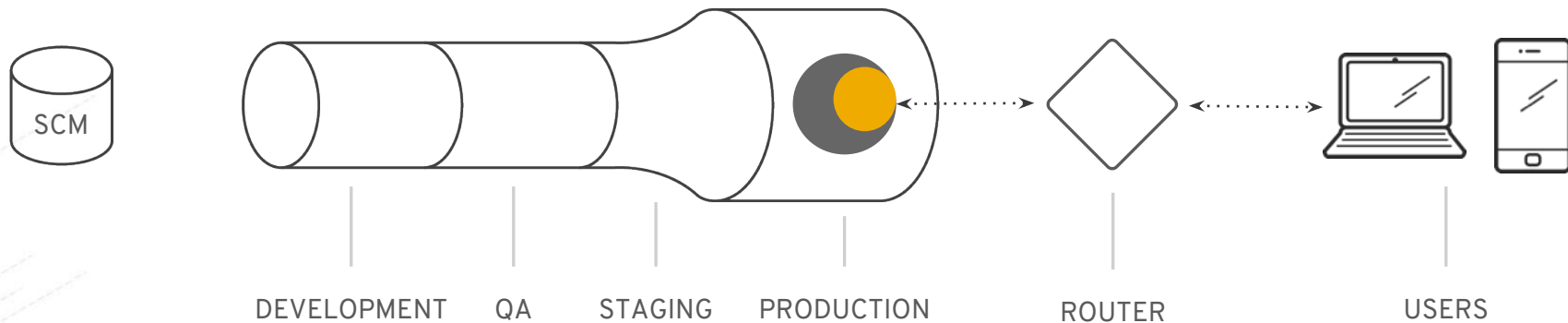
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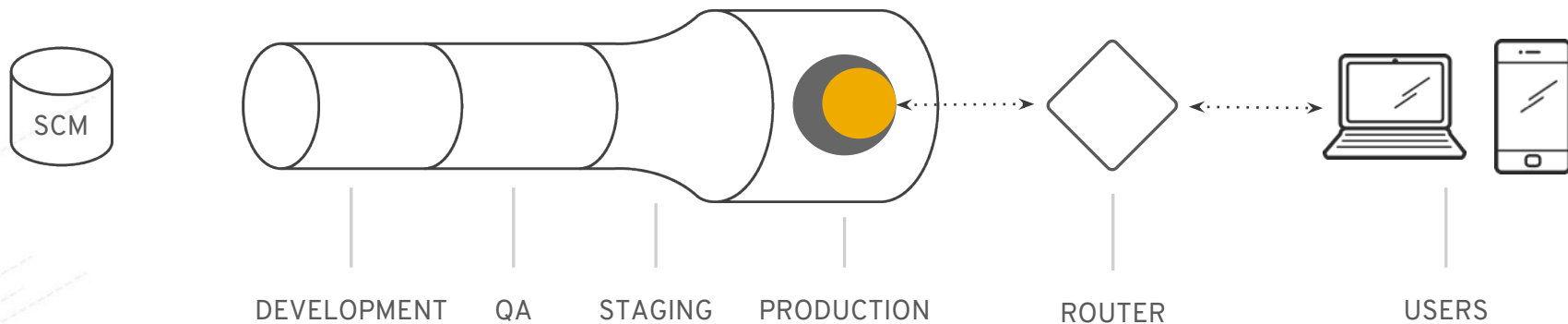
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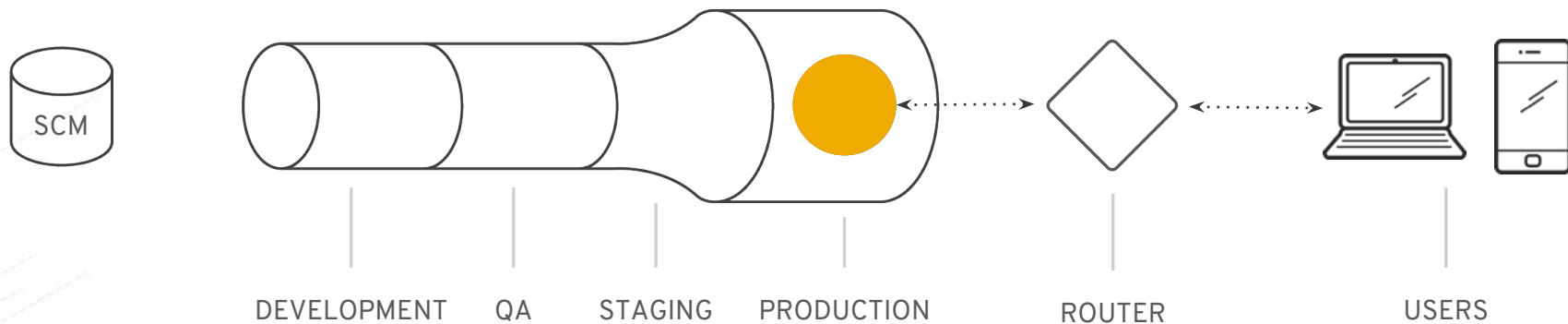
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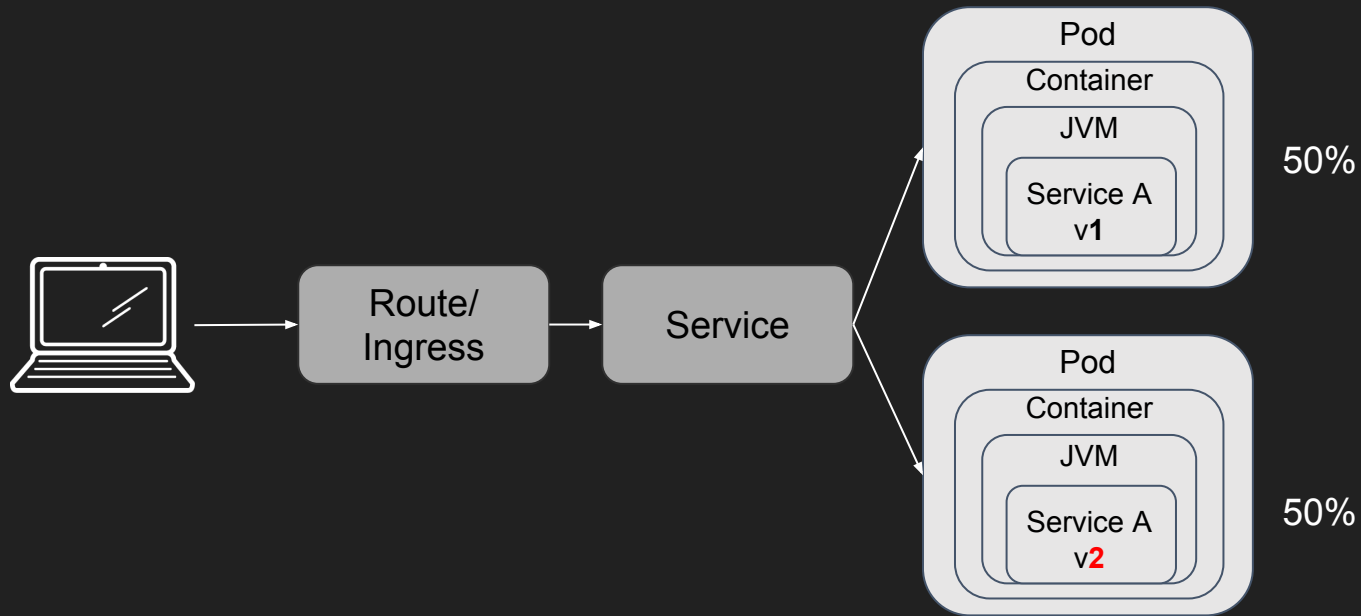
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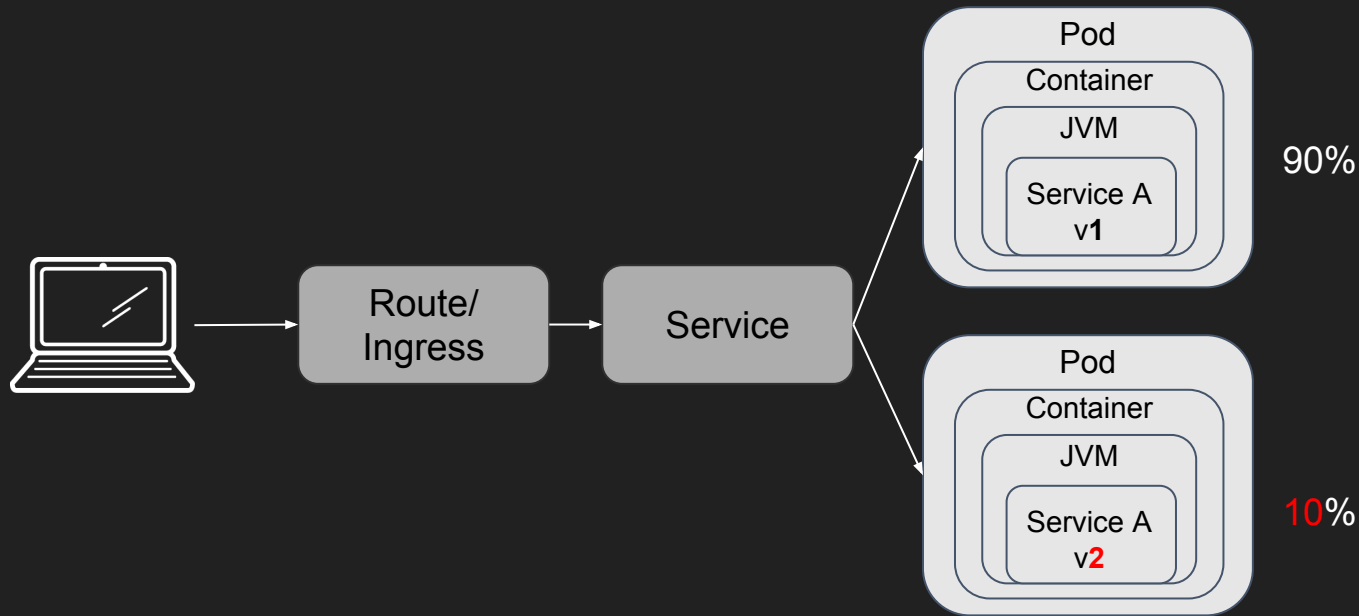
# Canary Deployment



# Canaries with Kubernetes



# Canaries with Istio

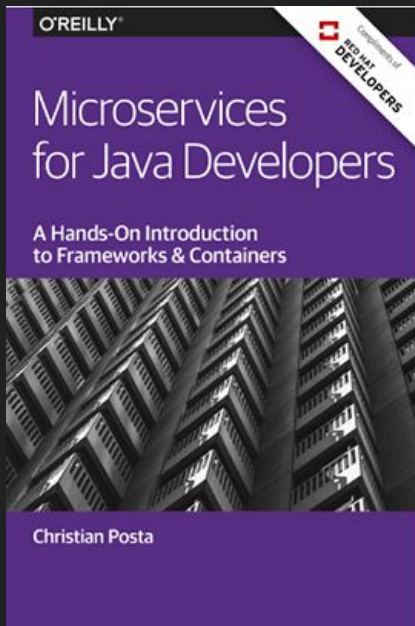




Demo

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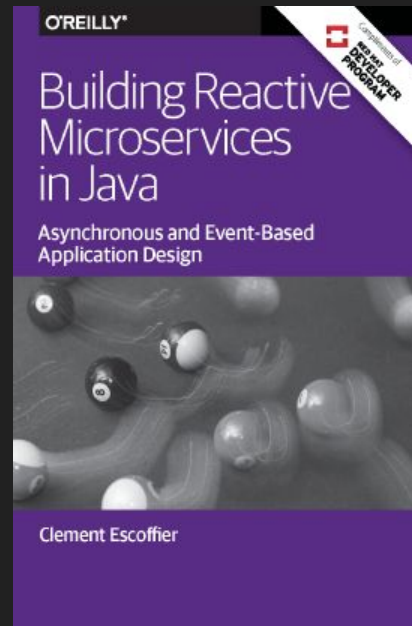
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